Modification of License
Engineering Exhibit
FCC Form 302
WMZQ-FM
Washington, DC
BLH-6423

This engineering exhibit is part of an application that seeks to modify the license of WMZQ-FM to specify a replacement Non-Directional antenna, and change in transmitter power output (TPO), and additionally a correction of geographic coordinates to match antenna structure registration (ASR).

WMZQ-FM will now share antenna with an Auxiliary (BMXPH-20060130AKO) of WBIG-FM. This antenna is a Shively 6814, 6 section, 0.5 wavelength spaced antenna. Attached as part of this exhibit is a report demonstrating compliance with Occupied Bandwidth requirements.

A correction of geographic coordinates is requested to match with ASR 1017714 upon which the WMZQ-FM / WBIG-FM Aux antenna is mounted.

The requested coordinates (NAD 27) are:

38 deg 53 min 13 sec
77 deg 12 min 03 sec

This is a correction of 3 seconds total, thus is allowed by Section 73.1690 (C)(11). This change does not result in any new short-spacings nor does it materially increase the existing short-spacings.

RF Exposure Compliance

The Proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation."

The antenna system is a Shively 6814, 6- bay, half wave spaced antenna, mounted with its center of radiation 91 meters above ground level, and will operate with a combined effective radiated power of 50 Kilowatts in both the horizontal and vertical planes. At 2 meters above ground, at 155 meters from the base of the tower, this proposal will contribute worst case, 3.94 microwatts per square centimeter, or 0.39 percent of the allowable ANSI limit for controlled exposure, and 1.95 percent of the allowable limit for uncontrolled exposure. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

Occupied Bandwidth and Spurious Emissions Measurements

To Demonstrate Compliance with Section 73.317(b) through 73.317(d) of theFCC Rules and Regulations and hybrid FM specifications.

WMZQ– 98.7 Mhz / 254B
WBIG-100.3 Mhz / 262B

Washington DC
2/1/2006

Benjamin Brinitzer
Regional Vice President Engineering
Saturday, February 04, 2006

Measurements were conducted to demonstrate that WMZQ, and WBIG operating into a combined antenna system comply with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations. The measurements were conducted on 2/1/2006 by Benjamin H Brinitzer CPBE with Analog carriers of both stations simultaneously utilizing the shared antenna. The spectrum analyzer used for the measurements was a Agilent model 4402B, S/N my44211565 calibrated 8/04. A sample of WMZQ and WBIG Analog signals were derived from the main transmission line at the output of the combiner. RF was coupled to the analyzer using a short length of RG-142 50Ω double-shielded coaxial cable. One switchable 20 db pad (Bird model 5-A-MFN-06) was inserted ahead of the analyzer to avoid overload and to provide isolation.

The modulated carrier level of WMZQ was +4 dBm and the modulated carrier level of WBIG was +0 dBm. Since the WBIG reference level was lower, it was used as the reference for all harmonic, spurious and intermoduation measurements. All measurements were conducted with the transmitters and associated equipment adjusted as used in normal program operation.

For all occupied bandwidth measurements, the spectrum analyzer was placed in the peak hold mode for at least 10 minutes per measurement before the waveforms were observed. Both transmitters were observed to be in full compliance with section 73.317(b) of the FCC Rules with emissions appearing on frequencies removed from the carrier frequencies by between 120 kHz and 240 kHz attenuated by at least 25 dB below the modulated carrier level indicating the occupied bandwidth of each transmitter to be 240 kHz or less. Both transmitters were also observed to be in full compliance with section 73.317(c) of the FCC Rules with emissions appearing on frequencies removed from the carrier frequencies by between 240 kHz and 600 kHz attenuated by at least 35 dB.

Extensive measurement were also conducted to insure that emissions appearing on frequencies removed from the carrier frequencies by more than 600 kHz were attenuated by at least 80 dB as required by section 73.317(d) of the FCC Rules. To facilitate these measurements, notch filters were placed before the switchable 20 dB pad so that the spectrum analyzer gain could be increased by 27 dB. The filters were necessary to avoid the possible generation of false spurious or intermodulation products in the analyzer. The attenuation of the notch filters was 22.5 dB at 98.7 Mhz / 254B and 22.5 dB at 100.3 Mhz / 262B.

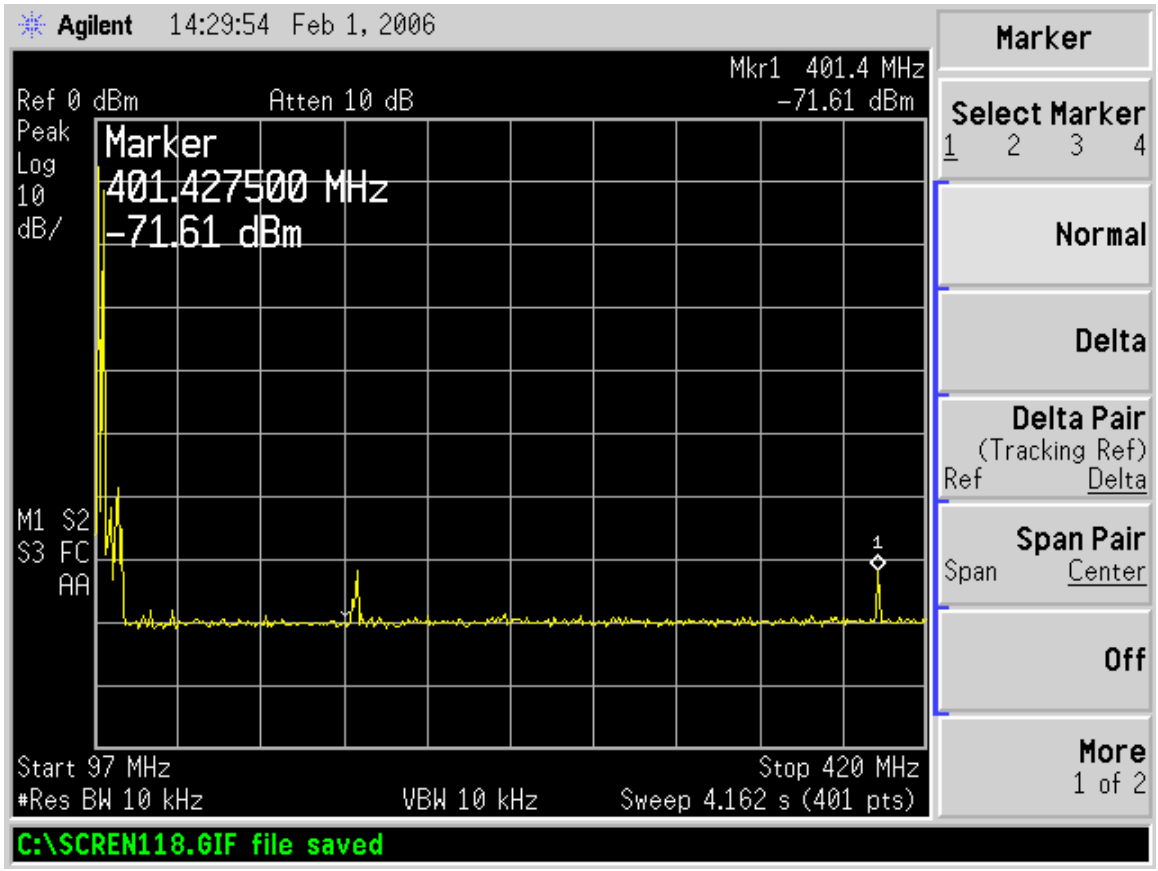
All harmonic and intermodulation frequencies in the range of frequencies between 3 MHz and 900 MHz through the 3rd order that could be produced by the combined operation of WMZQ and WBIG were predicted with a computer program, the results of which are shown in Table 1.

TABLE 1

#	Mult	x	Freq.	Sum/Dif	Mult	x	Freq.	=	Product
1.	1	x	98.7	+	1	x	100.3	=	199
2.	1	x	100.3	+	1	x	98.7	=	199
3.	1	x	98.7	+	2	x	100.3	=	299.3
4.	1	x	100.3	+	2	x	98.7	=	297.7
5.	1	x	98.7	+	3	x	100.3	=	399.6
6.	1	x	100.3	+	3	x	98.7	=	396.4
7.	2	x	98.7	=				=	197.4
8.	2	x	98.7	+	1	x	100.3	=	297.7
9.	2	x	98.7	-	1	x	100.3	=	97.1
10.	2	x	100.3	=				=	200.6
11.	2	x	100.3	+	1	x	98.7	=	299.3
12.	2	x	100.3	-	1	x	98.7	=	101.9
13.	2	x	98.7	+	2	x	100.3	=	398
14.	2	x	100.3	+	2	x	98.7	=	398
15.	2	x	100.3	-	2	x	98.7	=	3.2
16.	2	x	98.7	+	3	x	100.3	=	498.3
17.	2	x	100.3	+	3	x	98.7	=	496.7
18.	3	x	98.7	=				=	296.1
19.	3	x	98.7	+	1	x	100.3	=	396.4
20.	3	x	98.7	-	1	x	100.3	=	195.8
21.	3	x	100.3	=				=	300.9
22.	3	x	100.3	+	1	x	98.7	=	399.6
23.	3	x	100.3	-	1	x	98.7	=	202.2
24.	3	x	98.7	+	2	x	100.3	=	496.7
25.	3	x	98.7	-	2	x	100.3	=	95.5
26.	3	x	100.3	+	2	x	98.7	=	498.3
27.	3	x	100.3	-	2	x	98.7	=	103.5
28.	3	x	100.3	-	3	x	98.7	=	4.8

While special attention was given to the “product” frequencies listed in Table 1, measurements were conducted covering the entire range of frequencies between 3 MHz and 900 MHz. The only signals detected at levels attenuated by less than 80 dB below the modulated carrier levels and appearing on frequencies removed from the WMZQ and WBIG carrier frequencies by more than 600 kHz were the carriers of nearby FM and Television stations. In each case where these signals were observed to be at a level greater than –76 dBm (80 dB below the modulated carrier level of WMZQ) WBIG transmitter were turned off while the amplitude of the signal was observed to be unchanged, indicating that the signal was not the result of the combined operation of WMZQ and WBIG.

Table 2



Results of the measurements at the specific frequencies where harmonic or intermodulation products were predicted to possibly occur resulted in levels less than 80 DB under the fundementals

The results of these measurements confirm that the combined operations of WMZQ and WBIG into a shared antenna are in full compliance with section 73.317(b) through 73.317(d) of the FCC Rules and Regulations.

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Regional Vice President of Engineering